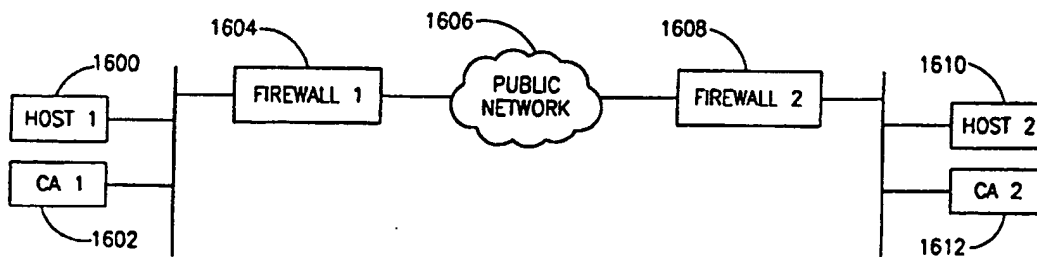




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : H04L 9/00, 12/56	A3	(11) International Publication Number: WO 97/00471 (43) International Publication Date: 3 January 1997 (03.01.97)
<p>(21) International Application Number: PCT/IL96/00017</p> <p>(22) International Filing Date: 16 June 1996 (16.06.96)</p> <p>(30) Priority Data: 114182 15 June 1995 (15.06.95) IL</p> <p>(60) Parent Application or Grant (63) Related by Continuation US 08/168,041 (CIP) Filed on 15 December 1993 (15.12.93)</p> <p>(71) Applicant (for all designated States except US): CHECK POINT SOFTWARE TECHNOLOGIES LTD. [IL/IL]; Ha-teomim Building 2, 35 Jabotinsky Street, 52511 Ramat Gan (IL).</p> <p>(72) Inventors; and (75) Inventors/Applicants (for US only): SHWED, Gil [IL/IL]; 21 Harechesh Street, 69699 Tel Aviv (IL). KRAMER, Shlomo [IL/IL]; 36 Harav Kuk Street, 63302 Tel Aviv (IL). ZUK, Nir [IL/IL]; 2 Zvi Street, 52504 Ramat Gan (IL). DOGON, Gil [IL/IL]; 78 Hakidma Street, 46743 Hertzlia (IL). BEN-REUVEN, Ehud [IL/IL]; 11 Arba Aratzot Street, 62486 Tel Aviv (IL).</p>	<p>(74) Agent: A. TALLY EITAN-ZEEV PEARL & CO.; Lumir House, 22 Maskit Street, 46733 Herzlia (IL).</p> <p>(81) Designated States: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p>Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report: 6 March 1997 (06.03.97)</p>	

(54) Title: **A SYSTEM FOR SECURING THE FLOW OF AND SELECTIVELY MODIFYING PACKETS IN A COMPUTER NETWORK**



(57) Abstract

A novel system for controlling the inbound and outbound data packet flow in a computer network by which private networks can be secured from outside attacks. A user generates a rule base (400) which is converted into a set of filter language instructions where each rule includes a source, destination, service, whether to accept or reject the packet and whether to log the event. The filter language instructions are executed on inspection engines (204) on computers acting as firewalls (124) positioned in the network such that all traffic is forced to pass through the firewall. Packets are filtered in accordance with the rule base. The inspection engine acts as a virtual packet filter machine (600) determining whether to accept or reject a packet. If a packet is rejected, it is dropped, and if accepted may be modified. Modifications, performed in accordance with the rule base, may include encryption, decryption, signature generation or verification, or address translation.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL96/00017**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(6) :H04L 9/00, 12/56

US CL :395/187.01

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 395/187.01, 200.01, 200.06, 200.09, 200.11, 200.17, 200.18; 370/60, 94.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,247,693 (BRISTOL) 21 September 1993, col. 4, line 43-col. 5, line 33.	1-25
Y, E	US 5,555,346 (GROSS et al.) 10 September 1996, col. 2, line 37-col.3, line 21.	1-25
Y, P	US 5,515,376 (MURTHY et al.) 07 May 1996, col. 2, line 31-col. 3, line 23.	2-5, 10-13, 19-22
Y, P	US 5,473,607 (HAUSMAN et al.) 05 December 1995, col. 3, line 36-col. 4, line 20.	14-16
Y	US 5,329,623 (SMITH et al.) 12 July 1994, col. 2, line 51-col. 3, line 25.	8, 17, 23, 25
A, P	US 5,485,455 (DOBBINS et al.) 16 January 1996, col. 2, line 66-col. 6, line 25.	1, 9, 18, 24

 Further documents are listed in the continuation of Box C.
 See patent family annex.

* Special categories of cited documents:	*T	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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Date of the actual completion of the international search

10 DECEMBER 1996

Date of mailing of the international search report

31 JAN 1997

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL96/00017

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: 26 (2nd Clm numbered 12)
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

The claim is indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim.

3. Claims Nos.: 26 (2nd Clm numbered 12)
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.